

Claims

1. An albumin fusion protein comprising IL-11, or a fragment or variant thereof, and albumin, or a fragment or variant thereof.
- 5 2. The albumin fusion protein of claim 1, wherein the IL-11 is human IL-11.
3. An albumin fusion protein according to Claim 1 or 2, comprising an albumin fused to IL-11.
- 10 4. The albumin fusion protein of any preceding claim, wherein the IL-11 is human IL-11.
5. The albumin fusion protein of claim 1 wherein the albumin has the ability to prolong the *in vivo* half-life of IL-11, or a fragment or variant thereof, compared
15 to the *in vivo* half-life of IL-11, or a fragment or variant thereof, in an unfused state.
6. The protein of claim 5, whereby the half-life of said albumin-fused IL-11 is extended at least 5-fold over the half-life of the IL-11 lacking the linked
20 albumin.
7. The protein of claim 6, whereby the half-life of said albumin-fused IL-11 is extended at least 10-fold over the half-life of the IL-11 lacking the linked albumin.
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8. The protein of claim 7 whereby the half-life of said albumin-fused IL-11 is extended at least 50-fold over the half-life of the IL-11 lacking the linked albumin.
9. The albumin fusion protein of claim 1 wherein IL-11, or a fragment or
30 variant thereof, is fused to the N-terminus of albumin, or the N-terminus of the fragment or variant of albumin.

10. The albumin fusion protein of claim 1 wherein IL-11, or a fragment or variant thereof, is fused to the C-terminus of albumin, or the C-terminus of the fragment or variant of albumin.
- 5 11. The albumin fusion protein of claim 1 wherein IL-11, or a fragment or variant thereof, is fused to an internal region of albumin, or an internal region of a fragment or variant of albumin.
12. The albumin fusion protein of claim 1 wherein IL-11, or a fragment or
10 variant thereof, is separated from the albumin or the fragment or variant of albumin by a linker.
13. The albumin fusion protein of any preceding claim wherein the *in vitro* biological activity of the IL-11, or fragment or variant thereof, fused to albumin,
15 or fragment or variant thereof, is greater than the *in vitro* biological activity IL-11, or fragment or variant thereof, in an unfused state.
14. The albumin fusion protein of any preceding claim wherein the *in vivo* biological activity of IL-11, or fragment or variant thereof, fused to albumin, or
20 fragment or variant thereof, is greater than the *in vivo* biological activity of IL-11, or fragment or variant thereof, in an unfused state.
15. A nucleic acid molecule comprising a polynucleotide sequence encoding the albumin fusion protein of any preceding claim.
- 25 16. A vector comprising the nucleic acid molecule of claim 15.
17. A host cell containing the nucleic acid molecule of claim 15.
- 30 18. A method for manufacturing an albumin fusion protein of any of claims 1-14, the method comprising (a) providing a nucleic acid comprising a nucleotide sequence encoding the albumin fusion protein expressible in a cell or organism;

(b) expressing the nucleic acid in the cell or organism to form an albumin fusion protein; and (c) purifying the albumin fusion protein.

19. The method of claim 18 wherein the albumin fusion protein is expressed in
5 a yeast.

20. The method of Claim 19 wherein the yeast is glycosylation deficient.

21. The method of claim 19 wherein the yeast is glycosylation competent.
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22. The method of Claim 18 wherein the albumin fusion protein is expressed
in a mammalian cell in cell culture.

23. A composition comprising the albumin fusion protein of any one of claims
15 1-14 and a carrier.

24. A pharmaceutical composition comprising an effective amount of the
albumin fusion protein of any one of claims 1-14 and a pharmaceutically
acceptable carrier or excipient.
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25. A method for minimizing a side effect associated with the treatment of a
mammal with IL-11 comprising administering an albumin-fused IL-11 to said
mammal.

26 A method according to Claim 25 wherein the mammal is suffering from a
25 bowel disorder and the side effect is weight loss, rectal bleeding or diarrhoea.

27 A method of increasing weight in a mammal suffering from a bowel disease
causing weight loss, the method comprising administering an albumin-fused IL-11
30 to said mammal.

28. A method of treating a disease or disorder in a patient, comprising the step of administering an effective amount of the albumin fusion protein of any of claims 1-14.
- 5 29. A method of treating a patient, comprising the step of administering an effective amount of the albumin fusion protein of any of claims 1-14.
30. A method of extending the *in vivo* half-life of IL-11, or a fragment or variant thereof, comprising the step of fusing IL-11, or fragment or variant thereof, to albumin or a fragment or variant of albumin sufficient to extend the *in vivo* half-life of IL-11, or fragment or variant thereof, compared to the *in vivo* half-life of IL-11, or fragment or variant thereof, in an unfused state.
- 10 31. A method for extending the half-life of IL-11 in a mammal, the method comprising linking said IL-11 to an albumin to form an albumin-fused IL-11 and administering said albumin-fused IL-11 to said mammal, whereby the half-life of said albumin-fused IL-11 is extended at least 2-fold over the half-life of IL-11 lacking the linked albumin.
- 15 32. A method for preventing or treating thrombocytopenia in a mammal, the method comprising administering an albumin-fused IL-11 to said mammal.
33. A method for minimizing a side effect associated with the treatment of a mammal with IL-11, the method comprising administering an albumin-fused IL-11 to said mammal.
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